

**REMARKS**

Claims 1-14 are pending in this application. By this Amendment, claim 12 is amended to correct a typographical error.

In view of the foregoing amendments and following remarks, reconsideration of the application is respectfully requested.

I. Rejection Under 35 U.S.C. §102(b)

Claims 1, 4, 7-9, 11 and 12 were rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 3,716,138 (hereinafter Lumsden). The rejection is respectfully traversed.

A. Claims 1 and 4

Lumsden relates to screens, and particularly to woven wire cloth in a vibratory screen used for classifying the material flowing through or over the screen. Lumsden fails to anticipate claims 1 and 4 for several reasons.

First, the vibrating screen of Lumsden is designed for classifying materials according to particle size, and is not suitable for solid-liquid separation as in the present application. Lumsden recites a screen and not a filter. The vibratory screen of Lumsden does not comprise a filtering portion having a structure and density for accomplishing solid-liquid separation. Thus, Lumsden does not disclose the solid-liquid separation filter cloth of claim 1.

One of ordinary skill in the art understands that a screen and a filter are not the same. A screen indicates use of a large sieve or wire mesh or riddle for sorting substances. A filter, on the other hand, must have a structure for removing the solid particles from a liquid or gas. See the attached definitions of "screen" and "filter". The screen in Lumsden is not suitable for solid-liquid filtration as is the filter of claim 1. Thus, the structure of the screen as taught by Lumsden and the structure of the filter cloth as recited in claim 1 are different.

Second, the Patent Office cites column 4, lines 5-10 and asserts that Lumsden teaches a filter cloth that is further to be arranged against a filtering element as in claim 1 of the present application. However, the cited text only mentions use of the screens in other areas, such as mining, quarry and mechanical industries. Lumsden does not teach a filter that is arranged against any filtering element. Instead, Lumsden teaches a support with decks having a screen cloth 19 tensioned between tension plates 20 along opposite sides of the deck (see column 1, lines 63-65). Figures 2 and 3 clearly show that the screen is tensioned between the tension plates and that nothing is below the screen, and thus does not describe a filter cloth arranged against a filtering element as in claim 1.

Third, the Patent Office asserts that Lumsden discloses thicker yarns placed at predetermined intervals to provide parallel channels to the bottom surface. However, Lumsden discloses a wire screen having a symmetrical structure as shown in Figures 5, 8 and 11. The wires 26, 46 and 66 run on the upper surface side and on the bottom surface side in the screen. Thus, Lumsden does not provide thicker parallel yarns on the underside of the screen as in the present application. Lumsden discloses warp wires 65 that are maintained in spaced parallel relation by weft wires 66 arranged in groups of three at spaced intervals along the length of the warp wires. Thus, Lumsden forms a so-called long slot screen and does not provide parallel channels as in claim 1.

Moreover, between the groups of three wires 66 in Lumsden, there are only wires 69 and no wires in the same direction as the wires 66 (see Figures 10 and 11). The so-called long slot screen structure of Lumsden is very coarse, and thus would not be capable of solid-liquid separation. Even if, for some reason, the screen of Lumsden were used for liquid-solid separation, the solids would easily pass through the screen and no separation would be achieved. The liquid and solids passing through the screen would not flow under the screen,

but instead would easily return to the upper surface side of the screen. Lumsden does not disclose a filter cloth with channels wherein the sorted substance could flow as in claim 1.

Therefore, the structure of the filter cloth as recited in claim 1 and dependent claim 4 is different from the structure of the screen cloth as taught by Lumsden.

B. Claims 7, 8 and 9

As described above, Lumsden does not teach a solid-liquid separation filtering module to be arranged on a filtering element as in the present claims. Instead, Lumsden teaches to tension the screen between the tension plates, wherein an empty space exists below the screen. Lumsden fails to teach any filtering element, and thus no channels are arranged so that a filtered liquid could flow to the openings in a filtering element. Nowhere does Lumsden disclose a filtering module arranged on a filtering element as in claim 7 of the present application.

Therefore, the structure of the filter cloth as recited in claim 7 and dependent claims 8 and 9 is different from the structure of the screen as taught by Lumsden.

C. Claims 11 and 12

For the same reasons stated above, Lumsden fails to disclose the solid-liquid separation filter apparatus of claim 11. Lumsden does not disclose the claimed filtering module designed for solid-liquid separation comprising channels between thicker yarns provided on the bottom surface side of the filtering module. Thus, without channels, Lumsden discloses a different apparatus for a different purpose, and does not disclose the apparatus of claim 11 and claim 12 dependent therefrom.

For the foregoing reasons, Applicant respectfully submits that Lumsden fails to anticipate the subject matter of claims 1, 7 and 11 and claims 4, 8, 9 and 12 dependent therefrom. Reconsideration and withdrawal of this rejection are respectfully requested.

## II. Rejections Under 35 U.S.C. §103(a)

### A. Rejection Based on Lumsden in view of Verpoest

Claim 2 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lumsden in view of U.S. Patent No. 6,184,161 (hereinafter Verpoest). The rejection is respectfully traversed.

Verpoest discloses a pile thread including a textile thread, where the textile thread is an assembled combination of at least one monofilament and at least one multifilament or one monofilament and an envelope of fibers. The enveloping fibers are melted around the monofilament in order to increase the stiffness (see column 3, lines 57-65). Alternatively glass fibers are tufted on the base yarn and treated with resin in order to improve the stiffness (see column 3, line 66 to column 4, line 14). Thus, Verpoest teaches forming a strongly increased stiffness of the product and does not disclose any yarns that could bend under the forces of the weaving.

The present application discloses that by directing the filter cloth appropriately, desired points of the module can be made stiff by means of the thick yarns in the bottom. For example, when the cloth is bent transversely to the thick yarns the cloth is stiff, but when the cloth is bent in the direction of the thick yarns, it bends readily over a section between the thick yarns (see page 7, paragraph [0020] of the present specification).

On the other hand, there is no suggestion, teaching or even any need in Lumsden to arrange any yarns being able to bend at the crossing points of the yarns in the screen. In fact, Lumsden teaches to use wires made of alloys (see column 3, lines 45-48). The suggested combination is based only on the improper hindsight use of the teachings of the present disclosure. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The references

must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5, 229 USPQ 182, 187 n.5 (Fed. Cir. 1986).

Further, it would be against the teachings of Lumsden to modify the structure by adding the pile yarns of Verpoest to the screen of Lumsden because Lumsden teaches to form a screen that is not sensitive to wear (see column 1, lines 23-28). If the alloy wires of Lumsden were substituted by the yarns of Verpoest, the wearing of the screen would increase and the size of the openings would change, thus preventing Lumsden from achieving its desired effect. Thus, there is no motivation to combine Verpoest with Lumsden to achieve the featured elements as recited in claim 2.

Therefore, neither Lumsden nor Verpoest, alone or in combination, teach or suggest the solid-liquid separation filter cloth as recited in claim 2. Reconsideration and withdrawal of this rejection are respectfully requested.

B. Rejection Based on Lumsden in view of Janovac

Claim 3 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lumsden in view of U.S. Patent No. 4,491,517 (hereinafter Janovac). The rejection is respectfully traversed.

Even if Janovac were to have been combined with Lumsden as alleged by the Patent Office, the presently claimed subject matter still would not have been achieved because Janovac does not remedy the deficiencies of Lumsden.

Specifically, Janovac also does not teach or suggest a solid-liquid filtration cloth having thicker yarns at the bottom side thereof as recited in the present claims.

Therefore, neither Lumsden nor Janovac, alone or in combination, teach or suggest the solid-liquid separation filter cloth as recited in claim 3. Reconsideration and withdrawal of this rejection are respectfully requested.

C. Rejection Based on Lumsden in view of Pedersen

Claims 5, 10 and 14 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lumsden in view of U.S. Patent No. 4,022,596 (hereinafter Pedersen). The rejection is respectfully traversed.

As stated above, Lumsden teaches to use wires made of alloys (see col. 3, lines 45-48). As such, the wires expand in length when subjected to heat. Further, mechanical tensioning plates in Lumsden cause necessary tensioning of the screen. Lumsden teaches the use of metal wires and nowhere does Lumsden teach or suggest the use of heat shrinkable yarns.

Moreover, Pedersen relates to a material for use as a tower packing medium. Pedersen intends to increase the thickness of a honeycomb configuration of the web by heat shrinking of specifically oriented yarns.

Even if Pedersen were to have been combined with Lumsden as alleged by the Patent Office, the presently claimed subject matter still would not have been achieved because Pedersen does not remedy the deficiencies of Lumsden. Specifically, Pedersen also does not teach or suggest thicker yarns in the underside of the filter cloth set against a filtering element as recited in the claims of the present application.

Therefore, neither Lumsden nor Pedersen, alone or in combination, teach or suggest the solid-liquid separation filter cloth as recited in claims 5, 10 and 14. Reconsideration and withdrawal of this rejection are respectfully requested.

D. Rejection Based on Lumsden in view of Oksanen

Claim 6 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Lumsden in view of U.S. Patent No. 6,787,492 (hereinafter Oksanen). The rejection is respectfully traversed.

Oksanen relates to a filter cloth intended for a filter which has a variable volume and is based on diaphragm extrusion. Oksanen discloses both outer surfaces of the filter cloth with protective layers. It would be against the teaching of Oksanen to leave the bottom surface side of the cloth without a protective layer, and thus the bottom surface cannot include any channels.

There is no motivation to combine a screening with a diaphragm extrusion, and thus it would not have been obvious to one skilled in the art. There is no motivation to combine Oksanen with Lumsden to achieve the elements as recited in claim 6.

Therefore, neither Lumsden nor Oksanen, alone or in combination, teach or suggest the solid-liquid separation filter cloth as recited in claim 6. Reconsideration and withdrawal of this rejection are respectfully requested.

E. Rejection Based on Derrick in view of Lumsden

Claims 11 and 13 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 5,211,008 (hereinafter Derrick) in view of Lumsden. The rejection is respectfully traversed.

Derrick teaches to arrange a plurality of screens on the top of each other and to secure the screens to each other by epoxy adhesive (see col. 5, lines 32-35). Further, Derrick teaches a multi layer screen, and thus no motivation exists to use a single layer wire screen of Lumsden.

Further, Derrick teaches calendaring (pressing) the screen to form flats into the screen. Even if Derrick would provide free channels in the underside of the screen, which is not apparent, the calendaring would destroy the channels.

Even if Lumsden were to have been combined with Derrick as alleged by the Patent Office, the presently claimed subject matter still would not have been achieved because Lumsden does not remedy the deficiencies of Derrick. Specifically, Lumsden also does not

teach or suggest the solid-liquid separation filtering apparatus of the present application as extensively discussed above.

III. Consideration of Information Disclosure Statement

The Patent Office indicated that the information disclosure statement (IDS) submitted on November 14, 2003 is being considered by the Examiner. The Examiner's consideration of the references by return of the initialed PTO-1449 is requested.

IV. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-14 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:

Definitions of "screen" and "filter"

Date: August 16, 2006

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**SCREEN**

surface. **■** (of writing or a drawing) done with quick and jagged strokes; a scratchy ink sketch of a man on

family Strigidae; in particular *Otus asio*), & etc. another term is BARN OWL.

4 pass (a substance such as grain or coal) through

DERIVATIVES filmset verb, filmsetter noun.

**film star** ► noun a well-known actor or actress in films.

**film stock** ► noun see STOCK (sense 1).

**filmstrip** ► noun a series of transparencies in a strip for projection, used especially as a teaching aid.

**filmy** ► adjective (filmy, filmiest) (especially of fabric) thin and translucent: filmy white voile. covered with or forming a thin layer of something: her eyes were dull and filmy.

DERIVATIVES filmily adverb, filminess noun.

**filmy fern** ► noun a small fern of damp shady places, with waxy creeping stems and delicate forked fronds which are only one cell thick. They occur chiefly in tropical and subtropical regions. ► Family Hymenophyllaceae: *Hymenophyllum* and other genera.

**fillo** /'filə/ (also phyllo) ► noun (mass noun) a kind of dough that can be stretched into very thin sheets, used in layers to make both sweet and savoury pastries, especially in eastern Mediterranean cookery: [in *mezzeh*] filo pastry.

ORIGIN 1950s: from modern Greek *phyllo* 'leaf'.

**Filofax** /'fɪləfæks/ ► noun trademark a loose-leaf notebook for recording appointments, addresses, and notes.

ORIGIN 1930s: representing a colloquial pronunciation of file of facts.

**filopodium** /'fɪləpədiəm/ ► noun (pl. *filopodia*) Biology a long, slender, tapering pseudopodium, as found in some protozoans and in embryonic cells.

DERIVATIVES filopodial adjective.

ORIGIN early 20th cent.: from Latin *filum* 'thread' + *PODIUM*.

**filosella** /'fɪləʊsɛlə/ ► noun (mass noun) flows silk, or silk thread resembling this, used in embroidery.

ORIGIN mid 16th cent.: from French, from Italian *filosella*, of uncertain ultimate origin.

**filovirus** /'fɪləvʌɪrəs/ ► noun a filamentous RNA virus of a genus which causes severe haemorrhagic fevers in humans and primates, and which includes the Ebola and Marburg viruses.

**fil** /'fɪl/ ► noun (pl. same) a monetary unit of Iraq, Bahrain, Jordan, Kuwait, and Yemen, equal to one hundredth of a riyal in Yemen and one thousandth of a dinar elsewhere.

ORIGIN from a colloquial pronunciation of Arabic *fil*, denoting a small copper coin.

**fil** /'fɪl/ French *fil* ► noun used after a surname to distinguish a son from a father of the same name: Alexandre Dumas *fil*. Compare with *PERE*.

ORIGIN French, 'son'.

**filter** ► noun a porous device for removing impurities or solid particles from a liquid or gas passed through it: an oil filter.

ORIGIN from *FILTRARE* v: [in *medicinal*] a cheap filter (cigarette, a screen, plate, or layer of a substance which absorbs light or other radiation or selectively absorbs some of its components: filters can be used in photography to reduce haze. a device for suppressing electrical or sound waves of frequencies not required. a Brit. an arrangement whereby vehicles may turn left (or right) while other traffic waiting to go straight ahead or turn right (or left) is stopped by a red light: [in *medicinal*] a filter lamp. a traffic light signalling such an arrangement, typically one partly blacked out to form an arrow. a Computing a piece of software that processes text, for example to remove unwanted spaces or to format it for use in another application.

verb [with obj.] (often be filtered) pass (a liquid, gas, light, or sound) through a device to remove unwanted material: the eye filters out ultraviolet radiation | figurative you'll be put through to a secretary whose job it is to filter calls.

verb [with obj.] move slowly or in small quantities or numbers through something or in a specified direction: people filtered out of the concert during the last act. [in *medicinal*] (of information) gradually become known: the news began to filter in from the hospital. [in *medicinal*] (of traffic) (of traffic) be allowed to pass to the left or right at a junction while traffic going straight ahead is halted.

ORIGIN late Middle English (denoting a piece of felt) from French *filtrer*, from medieval Latin *filtrum* 'felt used as a filter', of West Germanic origin and related to *FAIR*.

**filterable** (also *filtrable*) ► adjective 1 capable of passing through a filter.

2 capable of being separated out by a filter: filterable solids.

**filter bed** ► noun a tank or pond containing a layer of sand or gravel, used for filtering large quantities of liquid.

**filter cake** ► noun a deposit of insoluble material left on a filter.

**filter-feeding** ► noun (mass noun) Zoology (of an aquatic animal) feeding by filtering out plankton or nutrients suspended in the water.

DERIVATIVES filter-feeder noun.

**filter paper** ► noun a piece of porous paper for filtering liquids, used especially in chemical processes and coffee-making.

**filter press** ► noun a device consisting of a series of cloth filters fixed to frames, used for the large-scale filtration of liquid under pressure.

**filter tip** ► noun a filter attached to a cigarette for removing impurities from the inhaled smoke.

ORIGIN used to express one's anger and disgust: you filthy beast. a (of a mood) bad-tempered and aggressive: he arrived at the meeting half an hour late in a filthy temper.

DERIVATIVES filter-tipped adjective.

**filth** ► noun (mass noun) disgusting dirt: stagnant pools of filth.

obscene and offensive language or printed material, a corrupt behaviour: decadence. used as a term of abuse for a person or people one greatly despises: Nazi filth. [in *slang* from the *filthy* fil. *filth*, *filthy* the police.

ORIGIN Old English *filth* 'rotting matter, rottenness', also 'corruption, obscenity', of Germanic origin: related to Dutch *vuil*, also to *FOUL*.

**filthy** ► adjective (filthier, filthiest) disgustingly dirty: a filthy hospital with no sanitation.

ORIGIN [in *slang*] informal to an extreme and often disgusting extent: he has become filthy rich.

ORIGIN from *FILTRARE* v: [in *medicinal*] a cheap filter (cigarette, a screen, plate, or layer of a substance which absorbs light or other radiation or selectively absorbs some of its components: filters can be used in photography to reduce haze. a device for suppressing electrical or sound waves of frequencies not required. a Brit. an arrangement whereby vehicles may turn left (or right) while other traffic waiting to go straight ahead or turn right (or left) is stopped by a red light: [in *medicinal*] a filter lamp. a traffic light signalling such an arrangement, typically one partly blacked out to form an arrow. a Computing a piece of software that processes text, for example to remove unwanted spaces or to format it for use in another application.

**filtrate** /'fɪltreɪt/ ► noun a liquid which has passed through a filter: filtrates of bacterial cultures | (mass noun) a few drops of clear filtrate.

ORIGIN early 17th cent.: from modern Latin *filtratus*, from the verb *filtrare*, from medieval Latin *filtrum* (see *FILTRUM*).

**filtration** ► noun (mass noun) the action or process of filtering something: small particles are difficult to remove without filtration.

**filiform** /'fɪləɪn/ ► noun (pl. *filiformes* /-ɪz/) chiefly Anatomy a series of threads or other projections resembling a fringe.

ORIGIN from *FILIFORMIS* an individual thread in such a structure, especially a finger-like projection at the end of the fallopian tube near the ovary.

DERIVATIVES filiform adjective.

ORIGIN mid 18th cent.: from late Latin, 'border, fringe'.

**filtrated** /'fɪltreɪtɪd/ (also *filtrated*) ► adjective 1 Biology having a fringe or border of hair-like or finger-like projections.

2 *filtrated* having a narrow border, typically of a specified tincture.

ORIGIN late 15th cent. (in sense 2): from Latin *filtratus* (from *filtria* 'fringe') + *-ED*.

**fin** ► noun a flattened appendage on various parts of the body of many aquatic vertebrates, including fish and cetaceans, and some invertebrates, used for propelling, steering, and balancing.

ORIGIN from *FINIS* a flattened projecting surface or attachment on an aircraft, rocket, or motor car, for providing aerodynamic stability. a flattened projection on a device, used for increasing heat transfer.

ORIGIN (finned, finning) [in *medicinal*] (of a direction) swim under water by means of flippers: I finned madly for the surface.

DERIVATIVES finless adjective, finned adjective [in combination] primitive ray-finned fishes.

ORIGIN Old English *fin*, *fin*, of Germanic origin: related to Dutch *vin* and probably ultimately to Latin *pinnæ* 'feather, wing'.

**finagle** /'fɪnəɡəl/ ► verb [with obj.] informal obtain (something) by dishonest or devious means: Ted

attended all the football games he could finagle tickets for. [in *medicinal*] act in a dishonest or devious manner: they wrangled and finagled over the fine points.

DERIVATIVES finagler noun.

ORIGIN 1920s (originally US): from dialect *finaguer* 'cheat'; perhaps from Old French *finier* 'deny'.

**final** ► adjective coming at the end of a series: the final version of the report was presented.

ORIGIN from *FINIS* the last game in a sports tournament or other competition, which will decide the winner of the tournament.

ORIGIN a series of games constituting the final stage of a competition: the World Cup final.

ORIGIN a series of examinations at the end of a degree course: she was doing her history finals.

ORIGIN M. Am. an examination at the end of a term, school year, or particular class.

ORIGIN the principal note in a mode.

ORIGIN the final approach of an aircraft to the runway it will be landing on: the plane piloted by Richards was on final.

ORIGIN the final straw see *STRAW*.

ORIGIN Middle English [in the adjectival sense 'conclusive']; from Old French, or from Latin *finalis*, from *finis* 'end'. Compare with *FINISSE*.

**final cause** ► noun Philosophy the purpose or aim of an action or the end towards which a thing naturally develops.

**final clause** ► noun Grammar a clause expressing purpose or intention (e.g. one introduced by *in order that* or *lest*).

**final demand** ► noun a creditor's last request for payment of money owed, before taking punitive measures.

**final drive** ► noun the last part of the transmission system in a motor vehicle.

**finale** /'fɪnəleɪ, -leɪ/ ► noun the last part of a piece of music, an entertainment, or a public event, especially when particularly dramatic or exciting: the festival ends with a grand finale.

ORIGIN mid 18th cent.: from Italian, from Latin *finalis* (see *FINAL*).

**finalism** ► noun (mass noun) the doctrine that natural processes, for example evolution, are directed towards some goal.

DERIVATIVES finalistic adjective.

**finalist** ► noun a competitor or team in the final or finals of a competition.

ORIGIN mid 19th cent.: from French *finalité*, from late Latin *finalitas*, from Latin *finalis* (see *FINAL*).

**finality** /'fɪnəlɪti/ ► noun (pl. -ies) (mass noun) the fact or impression of being an irreversible ending: the abrupt finality of death | [in *slang*] there's a dreadful finality about cutting down a tree.

ORIGIN mid 19th cent.: from French *finalité*, from late Latin *finalitas*, from Latin *finalis* (see *FINAL*).

**finalize** (also *-ise*) ► verb [with obj.] complete (a transaction, especially in commerce or diplomacy) after discussion of the terms.

ORIGIN from *FINALIS* a finished and definitive version of efforts intended to finalize plans for post-war reconstruction.

DERIVATIVES finalization noun.

**finally** ► adverb after a long time, typically involving difficulty or delay: he finally arrived to join us.

ORIGIN as the last in a series of related events or objects: a referendum followed by local, legislative and, finally, presidential elections. a business event used to introduce a final point or reason: finally, it is common knowledge that travel broadens the horizons. it is such a way as to put an end to doubt and dispute: to dispel finally the belief that auditors were clients of the company.

**final solution** ► noun the Nazi policy of exterminating European Jews. Introduced by Heinrich Himmler and administered by Adolf Eichmann, the policy resulted in the murder of 6 million Jews in concentration camps between 1941 and 1945.

ORIGIN translation of German *Endlösung*.

**finance** /'faɪnəns, -ɪnəns/ ► noun (mass noun) the

cat | c | arm | c | bed | c | hair | c | ago | c | her | i | sh | i | cosy | i | see | d | hel | c | saw | a | ram | u | put | u | lee | a | my | a | u | how | e | day | o | u | no | o | near | c | boy | c | o | peer | a | o | fire | a | u | sour